The City as Interface
Digital Media and the Urban Public Sphere

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Abstract

The main concern of this study is the future of the urban public sphere. More specifically: it is an investigation of the urban public sphere as the site for the constitution and upkeep of various types of urban communities, or as I prefer to call them: 'urban publics'.

This issue in itself is by no means an original topic. The 'urban community question' has been a prominent issue in various debates about urban culture that have come forth since the rise of industrial metropolises such as Manchester, London, Paris, Berlin, Chicago and New York, starting in the second part of the nineteenth century. Today the issue is still at the heart of many debates about our urban present and future, for instance in the disputes about the threats of social fragmentation in cities such as car centered Los Angeles. Or in the discussions about the glitzy vertical neoliberal technopoles that in the last decade have arisen –literally- in East Asia, such as South-Korean New Songdo. This study builds upon the many insights that have been gained in all these discussions, both academic, professional and vernacular in character.

At the same time, it also differs from these studies at one crucial point. Most studies on the urban public sphere have so far theorized it as a spatial construct, a physical place for encounter and social interaction. The urban public sphere is often understood as a 'platform' or 'stage' on which citizens perform their various social roles, and where they are confronted with one another. These performances in physical public spaces are thought to be crucial for the process through which citizens gain knowledge of each other and learn about their corresponding or contradictionary attitudes or interests. As such, the urban public sphere as a site of performance and confrontation plays an important role in the formation of urban publics or communities.

I argue that such a purely spatial approach has become problematic now that new media technologies, from the mobile phone to urban sensor networks, have started to play an important role in the experience and organization of

everyday urban life. The experience of the city has become extended by media technologies that bring absent others or distant (either in time and space) contexts into the here-and-now. The infrastructure of these new technologies and the way they are programmed now co-shape urban life, just like the physical infrastructures and the spatial programming of urban planning have always done. This means that these technologies may intervene in the spatial-cultural processes in which urbanites are brought together, perform their social roles and in which urban publics are formed. This hypothesis has resulted in the following questions as the central points of departure for this study:

> How do digital technologies and mobile media allow citizens – in the context of the city – to represent themselves and make (parts of) their various social roles public? How do these technologies change the way that urbanites are (physically) brought together, come into contact with each other and learn about or are confronted with their fellow urbanites? How does this affect the way that 'urban publics' are formed? And what does that mean for the way the city functions as a community at large?

These questions are not only sociological, empirical ones, but also normative and philosophical in character. Walter Benjamin speaks of a moment in the introduction of new technologies in which we find ourselves 'at the crossroads', a moment in time at which 'a new view on the historical world' is created, 'at the point where a decision is forthcoming as to its [technology's] reactionary or revolutionary application.'[1] What he means, is that new technologies can be engaged in different ways. They can be designed or taken up to change economic and social relations as well as power structures, but they can also be used to strengthen existing social patterns and power relations. This is an open process that cannot be easily predicted or influenced, but it is also not completely beyond our control. Technology is not an outside force that changes our society from outside-in. Technologies are designed, regulated and adapted (or not) by society, by its power structures as well as its normative ideals, operative for instance in the code of law, in the mindset of urban designers and in the everyday customs of citizens. In addition, technologies that may have been designed with a particular ideal or goal in mind, may be applied to other and sometimes even contradictory ideals as well. In the past, discussions about social or urban ideals have played an important role in the way that these technologies were designed, regulated, domesticated or appropriated. However, which ideals are at work in the design

[1] McQuire, *The Media City. Media Architecture and Urban Space*

and appropriation of new technologies is not always openly discussed; often technologies are presented as a 'magic force' that will simply make our society better. 'Technology at present is covert philosophy', says the American researcher in communication studies Phil Agre, 'the point is to make it more openly philosophical'. [2]

The main justification for this research is that at this point in time we find ourselves at a 'Benjaminian' moment 'at the crossroads', and that it is time to make our new urban media technologies more openly philosophical. Portable devices, mobile operating systems, smartphone apps, sensor networks, location services, all these technologies are designed, brought to the market, rolled out, regulated and adapted as we speak. It is not clear yet in what direction this will take our urban societies. Different scenario's reign: the first is a pessimist one that stresses the further commercialization, fragmentation and individualization of the urban public sphere. This is countered by a more optimist one, in which these very same devices, technologies and software are adapted to reinvigorate the urban public sphere and even create new types of urban publics.

Being at 'the crossroads' means that we cannot give a conclusive empirical answer as to how these new technologies may affect the constitution of the public sphere. But we can have a look at some first findings from sociological, anthropological and humanities research that may give us a hint of a number of possible futures. From a philosophical point of view, our 'moment at the crossroads' makes this even very urgent. The fact that these technologies have not yet crystalized out into the commonplace practices of everyday life, that they have not been regulated, or fully adapted by both government agencies, market forces and the public, means that at least theoretically we still have a choice in deciding which urban ideals these technologies could serve and how in the end they may affect the urban public sphere and our urban societies.

The aim of this study is thus twofold. First, I will investigate the various roles that digital media technologies may play in the constitution of the urban public sphere and what that means for the ways urban communities and publics are shaped. But we can only understand or intervene in these scenarios if – second – we have an appreciation of the urban ideals at work in the design and appropriation of urban technologies and how these relate to the broader debate about the urban public sphere and historic urban ideals.

[2] P. E. Agre en M. Rotenberg, *Technology and Privacy: The New Landscape* (Cambridge MA: MIT PRess, 1997).

The City as Interface

To study the role of digital media technologies in the urban public sphere, I have made use of the frame of 'the city as an interface'. An interface is a somewhat technical term used to describe environments that allow two or more systems to adapt to each other. In urban theory, the term 'interface' usually refers to the ways individual citizens can adapt to or try to reshape the collective rhythms, practices and the logics of the urban communities they are part of. In such a way it has been used by, amongst others, Steven Johnson and Manuel Castells.[3] 'Cities have always been communication systems, based on the interface between individual and communal identities and shared social representations', writes Castells. 'It is their ability to organize this interface materially in forms, in rhythms, in collective experience and communicable perception that makes cities producers of sociability, and integrators of otherwise destructive creativity.'[4] Point of departure is – again – the mechanisms of the urban public sphere as a site for the performance of social roles, the encounter and confrontation between citizens and the formation of urban publics. The 'city as interface' metaphor adds an extra layer of complexity to this process. The urban public sphere is not merely a 'neutral stage' on which citizens perform their roles, but it may play an active role in this process. Particular cultural repertoires become tied to particular places, and these places literally 'set the stage' for the interactions that are deemed appropriate in these places. Specific social, cultural and economic practices, traditions and power structures manifest themselves in physical urban structures as well as particular protocols that govern particular urban sites. When citizens come across these spaces, they are made familiar with the particular logic and rhythms of these social systems. They can either adjust their individual lives to these logics, or try to change these. They can either identify with the protocols, the rhythms and practices or try to resist and reshape them. The city acts as an interface: collective practices and values are physically embedded in the city and its social spatial protocols, and when these collective practices change, the city changes with them.

To analyze this complex process I have introduced four concepts that have helped me to describe how the city functions as an interface. First I have analyzed various cases in which the urban public sphere serve as a stage on which social roles are performed. How does it serve as a *platform* for encounter and confrontation between citizens? Second, and third I have looked at the

[3] Johnson, *Interface Culture*., Castells, 'The Culture of Cities in the Information Age.'

[4] Castells, 'The Culture of Cities in the Information Age.'

functions and experiences of these platforms: how and by whom is the urban public sphere *programmed,* either in top down fashion by planners and policy makers, or bottom-up by citizens themselves? And which *filtering* mechanisms are operative; that is, which urbanites are present and who is excluded? Fourth I looked at the *protocols* that guide social interaction in these places. How have they come into being, who is reinforcing them and by whom are they contested? Each time around, it is the specific combination of *platform*, *program*, *filters* and *protocols* that make up the urban public sphere and let is function as an interface that plays a role in the constitution and upkeep of various urban communities and publics, as well as in the shaping of their mutual relations.

With the advent of digital media technologies in everyday urban life, such an approach is no longer merely metaphoric. It is no longer just the physical urban public sphere that functions as a site for performances and encounters. For instance, social networks and their status updates have started to function as additional platforms on which citizens perform their everyday lives. Similarly, the programming and filters of search engines, gps-devices and smart phone apps co-shape our everyday urban practices. Particular social values and urban ideals are now codified in the lines of software code that make up the protocols that govern these interfaces. All of these factors together play a role in the way we perform our social roles, and with whom we do or do not interact.

Urban publics, and the urban public sphere

The concept of the urban public sphere as I have used it, is related to a particular understanding of urban communities, or groups of people who share a similar set of values, traditions, outlooks on life, political goals, economic interests or a combination of one or more of these factors. In this study I prefer to use the term 'publics' rather than communities. There are two reasons for this. First I want to demarcate the modern urban communities that are the subject of my study from traditional communities. Traditional communities contain all aspects of life, and membership is pre-given and more or less compulsory. Modern urban communities are based on the more or less voluntary assembly of citizens who share single (or perhaps plural but seldom all) aspects of life. Examples are neighborhood-dwellers who share a geographic location, but not necessary a value system or common identity, colleagues at work, fellow members at a sport or hobby club, citizens with particular political outlooks, a group of people who temporarily share a common interest or goal. Or even all inhabitants of the city at large who need to find some sort of a political agreement on their communal

future as citizens. Some of these publics are characterized by strong mutual ties and form an important part of the lives of their members. In other publics, commitment is low. Some are mainly cultural assemblages of citizens; others are mainly political in character. Some publics exist over long time spans, others have a short life and fall apart after a particular goal is reached. Yet all of them are groupings of people that address their members in a particular way, and/or with which members identify themselves to a certain extent.

The second reason I call these temporary assemblies of citizens 'publics' is that I want to foreground the performative aspects of these social groupings. A public can be formed when a group of people makes their lives 'public': people show – conscious or unconscious – who they are (or want to be) and what their goals are by how they act, what they do, where they are, what they wear, what they say and how they say it. Others who are present in a given situation use these performances to – again conscious or unconscious – make comparisons: are these people like me? Are they different? Do I want to belong to this group of people? Or do I want to be different? How should I relate to them? It is out of these collective performances that protocols come into being as a set of cultural repertoires that can become connected to these publics and to certain places. It is this process in which certain groups or subcultures are formed and maintained, and through which particular protocols can also be connected to particular places. This is a dynamic process: out of these interactions publics may emerge that claim a certain territory in the city, a public may either thrive because the protocols are repeatedly embraced, but its protocols and territories may also be challenged by others.

The urban public sphere thus can be understood as those sites where citizens make their lives public through the performance of their various social roles. At the same time, citizens make up a public (in the meaning of an audience) that observes the performances of others who are present. Out of this process, publics (as in 'communities' or 'social groupings') of people who share similar interests or identities – or who, despite their differences, still have to relate to each other – may or may not emerge.

In these processes the urban public sphere has two different functions. In this, I built upon the work of Lyn Lofland who discriminates between private, parochial and public realms, the latter two of which make up what I have so far called the urban public sphere. Parochial realms are those places that are recognized by 'a sense of commonality among acquaintances and neighbors who are involved in interpersonal networks that are located within "communities"'[5]

[5] Lofland, *A world of strangers : order and action in urban public space*.

Parochial spaces, realms or domains are those places in the city were people have a sense of being at home, where they can identify with the people present and the rhythms and protocols that govern the place. Examples are a coffee house that is used by a particular ethnic minority, a night club that is frequented by one or another subculture, a neighborhood that hosts people with similar lifestyles, or even that one particular bench in a city park that is frequented by a small group of locals. The public realm on the other hand, according to Lofland, consists of 'those areas of urban settlements in which individuals in copresence tend to be personally unknown or only categorically know to one another.'[6] In other words: in parochial domains we are surrounded by people who are more or less like us, and where we feel at home. In the public domain we make up temporary urban publics with people who are different from us. Parochial and public domains are not mutually exclusive categories. Places may change in character during the day, and the experience of a place also depends on the perspective of a user. When someone visits a site that is clearly a parochial domain for a particular subculture, but he or she doesn't belong to that subculture, then he or she might experience this place as a public realm. The point is that these two perspectives embody two important functions of urban society. Parochial domains allow us to feel at home, to take part in collective practices and rituals that we value. Without them most us would feel lost. Public domains allow us to acquire knowledge of, relate to or even confront those who are not like us, but with whom in the end we do have to live together in the city at large. To avoid confusion: when I talk about the urban public *sphere*, I refer to all sites in the city that are used for social exchange and interaction, both parochial and public in function. When I use the terms public *realm* or *domain* I refer to those parts of the urban public sphere that are used for the confrontation with 'others'.

The normative debate about the urban public sphere often comes down to the question what the right balance should be between parochial and public realms. In this, I have come across three 'urban ideals' that can be placed on a sliding scale. On one end, we can place a communitarian perspective. Here the ideal is that all citizens share a common culture and belong to locally based communities or publics. The city is then understood as a single parochial domain, or perhaps as an assemblage of plural parochial domains that exist on the level of the city's neighborhoods, with a public domain as a site where citizens from various neighborhoods interact and together make up the urban community at large. On the other end of the sliding scale we find a libertarian urban ideal. Here the city is mainly understood as a market place, both in economic and cultural

[6] Ibid.

terms: people with similar interests or lifestyles find each other and make up a large number of publics, but there is not necessarily an overarching urban community in a cultural or even a political sense. The cityscape can be mapped as a patchwork of various networks of parochial domains, and most people have the freedom to live in their own lifestyle enclave. The public domain – as sites where various parochial domains overlap – is valued for its opportunities as a cultural market place: there citizens can learn about other lifestyles, draw inspiration, and perhaps invent new lifestyles, but it is not a site that somehow binds all citizens together in a political or cultural community, nor is this necessarily thought desirable. In the middle we find something akin to a 'republican' perspective. In this urban ideal, citizens have the freedom to choose their own lifestyle, but they also have the duty to relate to all other citizens. Parochial domains and public ones are carefully balanced, and it is frowned upon when citizens fully retreat in their parochial domains. Without proper public domains, the argument goes, the city will cease to exist as a democratic society, and will fragment into a series of enclaves of people who do no longer relate to each other.

What is of interest in this study is the question whether new media have the affordance to shift the balance of parochial and public domains in one way or another. Do new media technologies re-enforce the boundaries of parochial domains? Or do they offer new opportunities for public domains to come into being? In the rest of this summary, I will examine a number of current trends in urban new media use that will give us some first answers to that question. To do that, I will return to the three main questions of this study. But before that, I first need to explain in more detail what I mean with the digital and mobile technologies I have been referring to so far.

Urban media technologies

So far I have briefly mentioned a broad range of new media technologies that may or may not play a part in the way the urban public sphere comes into being. It is difficult to apply a single label to these technologies. Labels that are in use by various disciplines range from *ubiquitous computing* to *locative media*, from *ambient intelligence* to *the Internet of things,* and from *the sentient city* to *urban informatics*. Nor do these technologies have a single point of origin or trajectory of deployment—although many do have their genesis in military research programs. Some are rolled out by government agencies that want to bring order to and control urban space. Others are marketed by profit-driven telecommunication companies trying to provide their customers with personalized services.

Sometimes community workers take up these technologies, hoping they can enhance mutual understanding between different cultural groups. There are even artists who work with these very technologies to critique their role in promoting a consumer based society or bringing about a *society of control*. And then there are the actual users of the technologies that often appropriate them in slightly different ways than intended by their designers or marketers.

What all these urban media – a catchall term that I have used – have in common is that they no longer adhere to the anything-anytime-anywhere-new media paradigm of the 1990s. They are no longer conceived as creating an external reality called 'cyberspace', populated by people with 'nomadic identities' who congregate in 'virtual communities'. Rather, these technologies are centered on location-sensing capacities and aim to intervene in or add to a specific here-and-now, creating 'hybrid cities', whose experiences are constituted by both the physical surroundings as well as the mediated content that is brought into these physical situations by various technologies.

I have chosen not to focus on specific new media technologies (they come and go rather quickly. Today's allstar is tomorrow's obsolete technology), but rather have described two sets of affordances that can be ascribed to these various technologies. The first one is the affordance of urban media to be used as a 'writing tool'. Many urban media technologies allow their users to literally write their experiences into the city. Citizens can leave memories, reviews, and other remarks and tie those ('geotag') to particular places. Visitors of those places can access this content. Similarly, citizens can use the status updates of social networks to describe where they are and what they are doing there. Both practices lead to what has been called a 'doubling' of the urban public sphere. The physical platform of the streets is now augmented by the databases of media networks in which registrations or representations of social performances that took place there (or were imagined as such) are stored. This means that the public that witnesses these actions is also no longer confined to the physical situation, but includes absent others. This 'writing capacity' of urban media is not only a bottom-up affordance. It is also used by institutions and governments to register what happens in urban places through various sensor networks, varying from CCTV camera's that recognize faces or car license plates to RFID-readers that register localized transactions with the help of chip cards. These data can also be stored in databases and made public to (specialized) absent audiences, such as law enforcement authorities or marketing departments. This can happen either on an individual or on an aggregated, level and show collective as well as individual patterns.

The second set of affordances is that of urban media as a 'territory device.' With this I mean a system or tool that intervenes in the experience of a particular space. From the bottom-up perspective of citizens, the mobile phone is a powerful tool that allows them to change the experience of a space. For instance, wherever they are in the city, they can always access their network of friends with their mobile phone or through their mobile social network. This could change the character of a place, as it turns public domains (that are characterized by the confrontation with 'others') into parochial domains (the sites of communication with fellow members of a particular urban public). Similarly they can use specific mobile apps to select places based on their personal preferences. These place making capacities work closely together with the affordances of urban media as writing tools. For instance, the traces that one leaves on social networks can be assembled into a 'profile' of a person. This profile can then be used by a particular algorithm to filter the city. For instance an app could recommend to visit or avoid particular places. This affordance of urban media as 'territory devices' is again not limited to citizens. Institutions, companies and governments can also use these technologies in a similar way. For instance, camera recognition may be used to identify the sex and age category of passers by and then adjust commercials on an electronic billboard to those who are watching it. Face recognition technologies or chip cards may identify individuals and grant or deny them access to a particular place. Or more subtle: the profiles that can be build from the traces that citizens leave behind in databases can be used to profile them and make particular places more or less attractive to them. For instance by dynamic pricing (people qualified as 'good customers' get cheaper access) or by luring them with special offers.

Taken together, the affordances of urban media to be used as a writing (or registration) tool and as territory device change the way the urban public sphere functions as an interface. It adds new mediated platforms to the urban public sphere, and thus broadens the public (as in audience) for the performance of social roles as it now may include absent others. In addition, the aggregated data of traces that people leave behind can become a new urban platform in itself on top of which new services can be build.

Urban media also change the way physical spaces are programmed. Urban spaces can become interactive and react to who is present. And from a bottom-up perspective, citizens can 'reprogram' the experience of a particular place with the help of their mobile phones. These technologies provide new ways of filtering as well. Particular people can be granted or denied access based on the way their identity is stored in various databases. Citizens can also use these technologies themselves to 'filter' the city and decide to visit or avoid particular

places based on various criteria. All of these processes are then regulated through the protocols that are coded into these technologies. But whose urban ideal do these protocols serve? Which cultural codes are coded into the computer code? In the rest of this summary I will address the main questions of this study: what could this shift in the way that the city functions as an interface mean for the constitution of the urban public sphere and of urban publics?

How digital technologies and mobile media allow citizens do – in the context of the city– to represent themselves and make (parts of) their various social roles public?

I just showed how urban media have the affordance to be used as a writing tool that allows citizens to publicize their lives on various new platforms. To find out how this affordance is actually appropriated I have looked at several studies. Danah Boyd for instance has found that using writing tools to publicize your life, may lead to an increased reflexivity. For the teenagers she studied, social networks function as a new platform for what Goffman has called 'impression management'. '[this] is the first generation', writes Boyd, 'to have to publicly articulate itself, to have to write itself into being as a precondition of social participation.'[7] In another research case, I showed that the articulation of place may play an important role in this process of impression management, and this may mean an increase in the symbolic use of space. People show who they are (or want to be) by showing where they are or with which places they identify themselves. In profiles and status updates the careful consideration of which places to mention is part of the representation of selves to specific audiences. The registration of spatial practices in various databases may also play a role in the functioning of various profiling and reputation systems. These traces can also be aggregated on a collective level, and this can lead to the visualization of collective rhythms in new ways. What is new in all these examples is that they extend the moment of the performance of social roles to additional platforms and additional publics (as in audiences).

How do these technologies change the way that urbanites are (physically) brought together, come into contact with each other and learn about or are confronted with their fellow urbanites?

This doubling of the urban public sphere through all sorts of digital interfaces may have repercussions for the way that citizens keep up their social relations.

[7] Boyd, 'Taken out of Context'.

Above I showed that they could use their mobile phones as territory devices that allow them to personalize their surroundings. Here, I built upon Ito et. al. who theorized the mobile phone as a 'membrane' that affords users to allow distant others to allow absent others into an urban situation. What and who is experienced as 'near' or 'present' is no longer that place or person that is physically near or present, but those that can easily be accessed, either in physically or through media devices. For some, this means a shift in the experience of the urban public sphere. The mobile phone can easily be used to create hybrid parochial realms within the physical public realm. Research from Ito et. al. has shown that young Japanese students now mainly see the public realm of the city as an environment in which they arrange their private meetings. In other words: for them the whole city is a latent private or parochial space, which can be activated with the help of their mobile phones.

There is some discussion whether this affordance re-enforces a broader development of parochialization of the urban public sphere. Some speak of citizens retreating in their 'telecocoons' or a 'full time intimate sphere', even in the midst of what used to be a public domain. Research from Rich Ling points in such a direction: he has found that mobile phones have lead to an increase in in-group contacts at the cost of contacts with others who are not a member of one of the various publics people are part of. The filtering mechanisms of urban media may even further contribute to this development, since they may point people to those spaces where they are likely to meet their peers and steer them away from traditional public domains.

This development may lead to two different (non-exclusive) scenarios with regard to the relation of parochial and public realms in the physical city. The first scenario is one that builds upon what Stephen Graham has called 'software sorting geographies'. A broader social development of parochialization, in which people with similar identities increasingly live, work and play together in 'lifestyle enclaves' is enforced by the appropriation of urban media. In this scenario, these media are mainly applied as filters, both by individual citizens as well as by various institutions. Citizens may use the filtering affordances of these technologies to find the spaces where they are likely to meet their peers. Institutions may use these same technologies to target particular publics and make places more attractive to them, or even to exclude access to those who do not belong.

A second scenario also builds upon a broader geographic trend that has been called 'Living Together Apart.' This is a development in which various urban publics live in and use the same geographic areas, but do not interact much. These areas resemble public domains in which various urban publics are confronted

with one another, but it is experienced mainly as a stack of parochial domains, in which micro-variations in spatial practices keep the publics more or less segregated. An example is found in the former working class turned migrant quarters near European inner cities that have become gentrified over the last decades. Local working class people, young professionals and migrants share the same neighborhood. A Turkish coffee house might be located next to a designer coffee bar. They are geographically close, but are separated by a large symbolic distance. Again: the filtering mechanisms of mobile media could enforce this scenario. The chaotic experience of all those different worlds on top of each other becomes 'navigable' and 'inhabitable' through the use of urban media that help users locate those microvariations in space that are relevant to them.

How does this affect the way that 'urban publics' are formed?

So far urban media thus seem to reinforce the trend towards parochialization. Citizens are increasingly brought into contact, or choose so themselves, with those who are similar to them. Alternatively, they are addressed as a public by commercial service providers that group citizens according to the profiles that emerge from the data they leave behind in the city.

That, however, is only one part of my findings. Urban media also have the affordance to create publics in different ways. Urban media can create a new type of platform that can bring forth collective issues around which publics can organize. I have looked at a number of artistic projects that explore this scenario. Data from various sensor networks can be mapped to, for instance, show the air quality or energy use of a city. These mappings can become a condensation point around which publics start to organize themselves. In addition, the use of urban media as a writing and registration tool can be used to make individual contributions to such communal issues visible. This could mean that it becomes easier to turn resources into a 'commons', a communally used and managed resource. First examples of these are the bike and car sharing schemes that have sprung up in various cities around the world. There is a chance that the communal use and management of these practical collective issues could lead to the formation of publics around these issues that bring together people from various backgrounds. I have shown how 'open data' initiatives could perhaps play a similar role. These too could create new platforms on which urban publics can form.

At the same time I have also argued that the introduction of a new platform by itself is not enough for a public realm to come into being. To function as a public realm, platforms need a program that provide one or more functions

that will attract citizens from various backgrounds. This is true for physical spaces as well as for urban media platforms. This is a lesson that community workers and government policy makers have also learnt. They hoped that the addition of new digital platforms for particular neighborhoods all of a sudden would bring the various publics who are 'living together apart' truly together in a virtual community or virtual public realm. Studies have shown that digital platforms can enhance the sense of a local community or public in a particular neighborhood, but that this doesn't happen by itself. Neighborhood mailing lists or bulletin boards usually enable people to socialize who are already similar socially. Moreover, they are more likely to be successful when they are programmed to fulfill practical functions.

In addition the 'writing affordances' of urban media can sometimes create crossovers between various urban publics, partially due to a broader social development that Barry Wellman has called 'networked individualism.' This concept was introduced to describe how modern citizens fulfill a large number of social roles, and as such take part in a wide range of publics, whose membership varies in intensity. Communities are not stacked in a model of concentric circles (family – neighborhood – city – nation), rather citizens are part of a wide range of networks, that partially overlap. And it is these points of temporarily overlap that can create temporary public realms. I have shown how in a Rotterdam neighborhood, a local blogger fulfills such a function. He writes about all events that take place in his neighborhood. These events are organized by various local publics. When members of one of these publics stumble upon his website to read an account of their event, they will also run into the accounts of other events. It is the blogger's intersecting networks that may play a part in the way local citizens take notice of each other.

What does this mean for the way the city functions as a community at large?

At the beginning of this summary, I have pointed out that, with regard to urban media, we are at a moment 'at the crossroads'. In this study I have described a number of scenarios for the various ways that urban media could be further developed and appropriated and what that might mean for urban societies. These scenarios can more or less be devided in two categories. In the first, urban media mainly work to enforce the parochialization of urban society. They enhance the contact of group members at the cost of interactions with strangers or those who are different. We have seen quite a number of examples of this scenario at work. At the same time, that is only one part of the story. The other scenario, in which urban media create new platforms, new ways of programming the city, new

filtering mechanisms and new ways to codify protocols in such ways that new moments of overlap between various publics are formed. In addition, urban media could even afford the rise of new publics around communal issues or resources.

What that means for the city as a community at large will also depend on which urban ideals will be applied to the further development and appropriation of new media. Earlier I mentioned three main categories of urban ideals that over the last half century have been operative in urban design and policy: a communitarian, republican and libertarian one. In my investigation of urban media, I have mainly come across republican and libertarian ideals that were embodied in the design and appropriation of these technologies. The libertarian ideals promote the city as a market place for services that are tailored to individuals, they favor the upkeep of parochial and private realms. And it is of course no surprise that we find this approach in a lot of commercial applications. The republican ideals focus on the creation of public realms, and we find this approach mainly in the work of artists, activists and community organizers.

In addition to the issue of which urban ideals these technologies could serve, there is also the issue of power. Who has the power to program the new urban interfaces? In this study I have analyzed two approaches that urbanist Dan Hill has placed at the two ends of a sliding scale. One the one hand, we find a 'locked down street' scenario. Here the platforms of urban media are proprietary systems, and it is their owners who code particular protocols into the software. On the other hand we find the 'open source street' scenario, in which platforms and protocols are open and citizens can program the city-as-an-interface. Both logics seem to be operative at the same time. For instance, in the Chinese city of Shenzhen the local government has invested in a CCTV-camera network. Its images are automatically analyzed by an algorithm that is coded to recognize social turmoil. When revolution or milder forms of street protests are immanent, alarm bells will automatically ring. At the same time, urban media have also made it easier for protesters to organize themselves, to use sms or twitter to reprogram the shopping street as a platform for their protest.

To conclude, in many of the scenarios I have studied I have come across a certain hope that urban media carry in them a promise of democratization and the formation of new public realms. New media, the argument goes, shift the power to program urban spaces to citizens, as we have seen for instance in the recent uprisings in the Middle East. Urban media thus afford new public realms and new ways for citizens to organize themselves into urban publics. However, my research has also shown that such a future is far from guaranteed. There are also other urban ideals at work. Many commercial services serve a more

libertarian agenda, and the way these services are appropriated enforce the parochialization of the urban public sphere. Both scenarios do not have to be mutually exclusive. When we understand the public realm as a site of temporary overlap between various parochial realms, urban media also have the affordance to make the nodes that connect individuals to their various networks productive as temporary public realms.